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Dated: April 17, 2009

Electronic Signature for Lawrence E. Russ: /Lawrence E. Russ/

EXPEDITED PROCEDURE

Group Art Unit: 2416

Docket No.: SONYJP 3.3-1076

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	:
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Sugaya et al.	:
	:
Application No.: 10/510,011	: Group Art Unit: 2416
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	:
Filed: September 29, 2004	: Examiner: T. H. Phan
	:
	:
For: RADIO COMMUNICATION SYSTEM,	:
RADIO COMMUNICATION DEVICE,	:
RADIO COMMUNICATION METHOD, AND	:
COMPUTER PROGRAM	:

AMENDMENT UNDER 37 CFR § 1.116

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated February 19, 2009, finally rejecting claims 1, 3-8, 17-26, 35-44, 53 and 54, please amend the above-identified U.S. patent application as follows:

IN THE CLAIMS

1. (currently amended) A wireless communication system, ~~that forms comprising:~~

a network including a plurality of wireless communication apparatuses that operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station, ~~the at least one of the~~ wireless communication apparatuses including ~~system comprising:~~

a transmitting-side or receiving-side communication apparatus which attempts to perform communication in a predetermined bandwidth, issues a notification indicating a setting of a period during which availability of the predetermined bandwidth is guaranteed in a communication range so that any other communication apparatus that receives the notification does not perform a communication operation in the predetermined bandwidth during the guaranteed period,

wherein, for each predetermined frame period, regardless of whether the wireless communication ~~apparatus system~~ is the transmitting-side or the receiving-side communication apparatus, the wireless communication ~~apparatus system~~ transmits beacon information that describes information regarding the guaranteed period.

2. (cancelled)

3. (currently amended) The wireless communication system according to claim ~~12~~, wherein the receiving-side communication apparatus of the at least one wireless communication apparatus creates timing utilized for communication in the predetermined bandwidth during the guaranteed period, in a pseudo manner, that has a same state as timing of transmitting a beacon of its own and notifies the timing utilized for the communication in the predetermined bandwidth.

4. (currently amended) The wireless communication system according to claim 1, wherein, ~~in a period in which none of the~~ wireless communication apparatuses has set a guaranteed period,

each of the communication apparatuses performs random access based on a collision avoidance operation ~~that starts in which~~ transmission starts in response to not after detecting ~~no a~~ transmission from any another communication apparatus.

5. (currently amended) The wireless communication system according to claim 1, wherein the transmitting-side or receiving-side communication apparatus of the at least one wireless communication apparatus sets a reservation period in its own frame period and performs the communication in the predetermined bandwidth by utilizing the reservation period.

6. (currently amended) The wireless communication system according to claim 1, wherein ~~each the~~ at least one wireless communication apparatus collects beacon information from neighboring ones of the wireless communication apparatuses, obtains information regarding a period that is guaranteed to one or more of the neighboring communication apparatuses, and does not set, as its own guaranteed period, the period that is guaranteed to the one or more of the neighboring communication apparatuses.

7. (currently amended) The wireless communication system according to claim 1, wherein the transmitting-side or receiving-side communication apparatus of the at least one wireless communication apparatus collects beacon information from neighboring ones of the wireless communication apparatuses, obtains information regarding a period that is guaranteed to one or more of the neighboring communication apparatuses, and sets, as its own guaranteed period, a period that is not guaranteed to any of the neighboring communication apparatuses.

8. (currently amended) The wireless communication system according to claim 1, wherein the transmitting-side or receiving-side communication apparatus of the at least one wireless communication apparatus obtains information regarding a period that is guaranteed to another one of the wireless communication apparatuses which is located at another end of a communication and sets, as its own guaranteed period, a period that is not guaranteed to any neighboring ~~ones~~ ones of the wireless communication apparatuses.

9. - 16. (cancelled)

17. (currently amended) A wireless communication apparatus, comprising:

wireless communication means for that—performings a wireless communication operation over a network formed of a plurality of wireless communication apparatuses that operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station, the wireless communication apparatus being one of the plurality of wireless communication apparatuses, ~~comprising:~~

communicating means for transmitting/receiving a wireless signal within its own communication range, ~~+~~

guaranteed-period setting means for requesting, within its own communication range, setting of a guaranteed period during which availability of a predetermined bandwidth is guaranteed for said wireless communication apparatus, ~~+~~ and

communication controlling means for executing a communication in the predetermined bandwidth in response to arrival of its guaranteed period,

wherein, for each predetermined frame period, regardless of whether the wireless communication apparatus is a transmitting-side or a receiving-side of a reservation communication, the wireless communication apparatus transmits beacon information that describes information regarding the guaranteed period.

18. (currently amended) The wireless communication apparatus according to claim 17, wherein the wireless communication means further comprises:

means for storing a guaranteed-period setting notification received from another one of the wireless communication apparatuses,

wherein the guaranteed-period setting means sets its own bandwidth guaranteed period while avoiding the guaranteed period that is already set by the another

wireless communication apparatus, and the communication controlling means does not perform a communication operation in the predetermined bandwidth during the guaranteed period that is set by the another communication apparatus.

19. (currently amended) The wireless communication apparatus according to claim 17, wherein in a period in which none of the wireless communication apparatuses has set a guaranteed period, the communication controlling means performs random access based on a collision avoidance operation ~~that starts in which~~ transmission starts in response to not after detecting ~~no~~ a transmission from any ~~another~~ wireless communication apparatus.

20. (currently amended) The wireless communication apparatus according to claim 17, wherein the guaranteed-period setting means describes information regarding the guaranteed period in a beacon transmitted for each predetermined frame period and transmits the beacon to inform neighboring ones of the wireless communication apparatuses within its own communication range about the setting of the guaranteed period.

21. (previously presented) The wireless communication apparatus according to claim 20, wherein the guaranteed-period setting means sets its own guaranteed period by avoiding the reception timing of a beacon.

22. (previously presented) The wireless communication apparatus according to claim 20, wherein the guaranteed-period setting means creates timing utilized for communication in the predetermined bandwidth during the guaranteed period, in a pseudo manner, that has a same state as timing of transmitting its own beacon and notifies of the timing utilized for the communication in the predetermined bandwidth.

23. (previously presented) The wireless communication apparatus according to claim 17, wherein the guaranteed-period setting means sets a reservation period for performing the communication in the predetermined bandwidth in its own frame period and the communication controlling means performs the

communication in the predetermined bandwidth in its own reservation period.

24. (currently amended) The wireless communication apparatus according to claim 17, wherein the guaranteed-period setting means of ~~each—the~~ wireless communication apparatus collects beacon information from ~~its—neighboring~~ ones of the wireless communication apparatuses, obtains information regarding a period that is guaranteed to one or more of the neighboring communication apparatuses, and does not set, as its own guaranteed period, the period that is guaranteed to the one or more of the neighboring wireless communication apparatuses.

25. (currently amended) The wireless communication apparatus according to claim 17, wherein the guaranteed-period setting means collects beacon information from neighboring ones of the wireless communication apparatuses, obtains information regarding a period that is guaranteed to one or more of the neighboring communication apparatuses, and sets a period that is not guaranteed to the one or more of the neighboring communication apparatuses as its own guaranteed period.

26. (currently amended) The wireless communication apparatus according to claim 17, wherein the guaranteed-period setting means obtains information regarding a period that is guaranteed to ~~a—another one of the~~ communication apparatuses which is located at another end of a communication and sets a period that is not guaranteed to any ~~neighboring~~ ones of the wireless communication apparatuses as its own guaranteed period.

27.-34. (cancelled)

35. (currently amended) A wireless communication method, ~~for comprising:~~

performing a wireless communication operation over a network formed of a plurality of wireless communication apparatuses that operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station, including~~the wireless communication method comprising:~~

issuing, within a communication range of a given one of the plurality of wireless communication

apparatuses, a notification indicating a setting of a guaranteed period during which availability of a predetermined bandwidth is guaranteed to that wireless communication apparatus, and

executing, by the given wireless communication apparatus, communication in the predetermined bandwidth in response to arrival of its guaranteed period,

wherein, for each predetermined frame period, regardless of whether the given wireless communication apparatus is a transmitting-side or a receiving-side of a reservation communication, the wireless communication apparatus transmits beacon information that describes information regarding the guaranteed period.

36. (currently amended) The wireless communication method according to claim 35, further comprising:

storing, at the given wireless communication apparatus, a guaranteed-period setting notification received from another one of the wireless communication apparatuses,

wherein the step of issuing the notification indicating the setting of the guaranteed-period includes setting its own bandwidth guaranteed period while avoiding a guaranteed period set by the another communication apparatus, and

the step of executing communication in the predetermined bandwidth is not performed in the guaranteed period set by the another communication apparatus.

37. (currently amended) The wireless communication method according to claim 35, wherein in a period in which none of the wireless communication apparatuses has set a guaranteed period, random access is performed by one of the wireless communication apparatuses based on a collision avoidance operation in which ~~starts transmission~~ starts in response to not after detecting ~~no~~ a transmission from any ~~another~~ wireless communication apparatus.

38. (currently amended) The wireless communication method according to claim 35, wherein in the step of issuing the notification indicating the setting of the guaranteed-period, information regarding the guaranteed period is described in a beacon transmitted for each predetermined frame period and the beacon is transmitted to inform neighboring ones of the wireless communication apparatuses within its own communication range about the setting of the guaranteed period.

39. (currently amended) The wireless communication method according to claim 38, wherein in the step of issuing the notification indicating the setting of guaranteed-period, ~~its own~~ the guaranteed period is set by avoiding the reception timing of the beacon.

40. (currently amended) The wireless communication method according to claim 38, wherein in the step of issuing the notification indicating the setting of the guaranteed-period, timing utilized for communication in the predetermined bandwidth during the guaranteed period is created by the given wireless communication apparatus in a pseudo manner to have a same state as timing of transmitting its own beacon and a notification indicating the timing utilized for the communication is issued by the given wireless communication apparatus.

41. (currently amended) The wireless communication method according to claim 35, wherein in the step of issuing the notification indicating the setting of the guaranteed-period, a reservation period for performing the communication in the predetermined bandwidth is set by the given wireless communication apparatus in its own frame period, and in the step of executing bandwidth-guaranteed communication, the communication in the predetermined bandwidth is performed in the reservation period.

42. (currently amended) The wireless communication method according to claim 35, wherein in the step of issuing the notification indicating the setting of the guaranteed-period of each communication apparatus, beacon information is collected by the given wireless communication apparatus from neighboring ones of the wireless communication apparatuses, information regarding

a period guaranteed to one or more of the neighboring communication apparatuses is obtained by the given wireless communication apparatus, and the given wireless communication apparatus does not set the period that is guaranteed to the one or more of the neighboring communication apparatuses ~~is not set~~ as its own guaranteed period.

43. (currently amended) The wireless communication method according to claim 35, wherein in the step of issuing the notification indicating the setting of the guaranteed-period of a transmitting-side or receiving-side communication apparatus of the given wireless communication apparatus, beacon information is collected from neighboring ones of the wireless communication apparatuses, information regarding a period guaranteed to one or more of the neighboring communication apparatuses is obtained by the given wireless communication apparatus, and a period that is not guaranteed to ~~the~~ one or more of the neighboring communication apparatuses is set by the given wireless communication apparatus as its own guaranteed period.

44. (currently amended) The wireless communication method according to claim 35, wherein in the step of issuing the notification indicating the setting of the guaranteed-period, information regarding a guaranteed period is obtained from another one of the wireless communication apparatuses which is located at another end of a communication, and a period that is not guaranteed to any ~~neighboring~~ ones of the wireless communication apparatuses is set by the given wireless communication apparatus as its own guaranteed period.

45.-52. (cancelled)

53. (currently amended) A wireless communication system, comprising:

a network including a plurality of wireless communication apparatuses that operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station, at least one of the wireless communication apparatuses including:

a processor operable to execute computer program instructions described in a computer-readable format, ~~+~~

the computer program for carrying out a method of performing a wireless communication operation over the network ~~in an autonomous distributed manner without a specific controlling station~~, the computer program instructions comprising:

issuing, within a communication range of the wireless communication system, a notification of a setting of a guaranteed period during which availability of a predetermined bandwidth is guaranteed to that wireless communication apparatus, and

executing a communication in the predetermined bandwidth in response to arrival of the guaranteed period,

wherein, for each predetermined frame period, regardless of whether the wireless communication system is a transmitting-side or a receiving-side of a reservation communication, the wireless communication system transmits beacon information that describes information regarding the guaranteed period.

54. (currently amended) The system according to claim 53, wherein the computer program instructions further comprise:

storing a guaranteed-period setting request received from another one of the wireless communication apparatuses,

wherein, the step of issuing the notification indicating the setting of the guaranteed-period includes setting its own guaranteed period while avoiding a guaranteed period that is already set by the another communication apparatus, and

the step of executing communication in the predetermined bandwidth is not performed in the guaranteed period set by the another communication apparatus.

55. (cancelled)

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 2, 9-16, 27-34, 45-52 and 55 are cancelled. Claims 1, 3-8, 17-26, 35-44, and 53-54 remain in this application and, as amended herein, are submitted for the Examiner's reconsideration.

Claims 3-8, 18-20, 24-26 and 36-44 have been amended solely to have the claims better conform to the requirements of U.S. practice. None of these amendments is intended to narrow the scope of any of these claims, and no new matter has been added by these amendments.

In the Office Action, claim 3 was objected to because of informalities and has been amended to correct same.

Turning now to the art rejections, claims 1, 3-8, 17-26, 35-44, and 53-54 were rejected under 35 U.S.C. § 102(e) as being anticipated by Shvodian (U.S. Patent No. 7,110,380). Applicants submit that the claims are patentably distinguishable over the relied on sections of Shvodian.

Independent claims 1, 17, 35, and 53 have each been amended to more clearly show the differences between the claimed features and the relied on art. No new matter has been added by these changes.

As amended herein, claim 1 recites:

a network including a plurality of wireless communication apparatuses that operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station[.]

(Emphasis added.) The relied on sections of Shvodian neither disclose nor suggest a network including a plurality of wireless communication apparatuses that operate in an autonomous distributed manner. Moreover, the relied on sections of Shvodian neither disclose nor suggest a network including a plurality of wireless communication apparatuses that operate in

an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station.

Rather, such sections of Shvodian are only concerned with networks in which a coordinator or controller issues a beacon that provides time slot assignments for the other users of that network. (See, e.g., Figs.6 and 15, Abstract 11.3-7, col.4 11.29-32, and col.6 11.34-36.) These sections are not at all concerned with a network in which wireless communication apparatuses operate in an autonomous distributed manner and are not at all concerned with a network in which wireless communication apparatuses operate in an autonomous distributed manner without any of the wireless communication apparatuses being a specific controlling station. Hence, the relied on sections of Shvodian neither disclose nor suggest the features set forth in the above excerpt of claim 1.

It follows, for at least the above reasons, that the relied on sections of Shvodian do not disclose or suggest the combination defined in claim 1 and therefore do not anticipate the claim.

Independent claims 17, 35, and 53 each call for features similar to those set out in the above excerpt of claim 1. Each of these claims is therefore patentably distinguishable over the relied on sections of Shvodian for at least the reasons set out above regarding claim 1.

Claims 3-8 depend from claim 1, claims 18--26 depend from claim 17, claims 36-44 depend from claim 35, and claim 54 depends from claim 53. Therefore, each of these claims is distinguishable over the relied on sections of Shvodian at least for the same reasons as its parent claim.

Accordingly, Applicants respectfully request the withdrawal of the objection and the withdrawal of the rejection under 35 U.S.C. § 102(e).

In view of the above, each of the presently pending

claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone applicants' attorney at (908) 654-5000 in order to overcome any additional objections which the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: April 17, 2009

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